

WHAT IS CLAIMED IS:

1. An emergency vehicle traffic signal preemption system;  
an intersection communications controller at each  
intersection for preemption;

a traffic light controller receiving inputs from said  
communications controller to control the operation of traffic  
lights and pedestrian lights at an intersection;

a transceiver for receiving information from an emergency  
vehicle and transmitting information about the status of an  
intersection;

a real-time status monitor for monitoring status at a  
selected intersection, said status monitor relaying said status  
information at said intersections to said communications  
controller;

a transponder in each emergency vehicle receiving said  
status information being transmitted by said intersection  
transceiver, said transponder including a transceiver for  
transmitting emergency vehicle data to said intersection  
communications controller;

a display in said emergency vehicle displaying the status  
of said intersection and other emergency vehicles responding to  
an emergency;

whereby said emergency vehicle traffic signal preemption  
system operates autonomously by transmissions to and from said  
emergency vehicle and intersection.

2. The system according to Claim 1 in which said intersection communications controller controls the operation of a display at each corner of an intersection to indicate the direction and location of one or more emergency vehicles approaching an intersection.

3. The system according to Claim 2 in which said status monitor is a real-time status monitor.

4. The system according to Claim 1 including an audio warning system to alert pedestrians at said intersection.

5. The system according to Claim 4 in which said audio warning system includes an audio warning circuit receiving an output from said intersection communications controller, said audio warning circuit activating an audio warning device at said intersection.

6. The system according to Claim 5 in which said audio warning device comprises a speaker at each corner of an intersection.

7. The system according to Claim 1 in which said transponder includes;

    a transponder communications controller;

    an on-board diagnostic circuit, said on-board diagnostic circuit processes data regarding an emergency vehicle and

delivering said data to said transponder communications controller;

a transceiver in said transponder transmitting said data from said on-board diagnostic circuit to said intersection.

8. The system according to Claim 7 in which said transponder transceiver receives status information regarding said intersection;

said intersection status information being delivered to an intersection preemption circuit;

said intersection preemption circuit activating said display in said transponder to indicate the status of said intersection.

9. The system according to Claim 8 in which said display includes colored LEDs to indicate the status of an intersection.

10. The system according to Claim 9 in which said colored LEDs are a green LED, a yellow LED and a red LED, said green, yellow, and red LEDs selectively indicating preemption detected, preemption active or a conflict with another approaching emergency vehicle detected respectively.

11. An emergency vehicle traffic signal preemption and control method comprising;

receiving emergency vehicle critical data at an intersection transceiver;

processing said emergency vehicle critical data in an intersection digital communication controller;

activating a traffic light controller by an output from said communications controller;

activating all traffic and pedestrian lights at an intersection to stop all vehicle and pedestrian traffic at said intersection;

monitoring the status of said traffic light controller, traffic lights and pedestrian lights at said intersection;

transmitting said status information monitored to said emergency vehicle;

displaying the status of said intersection and other emergency vehicles in said emergency vehicle;

whereby said emergency vehicle traffic light preemption method operates to control the flow of vehicle and pedestrian traffic at an intersection autonomously to allow safe passage of emergency vehicles.

12. The method according to Claim 11 including;

collecting critical data about said emergency vehicle in an on-board diagnostic circuit;

processing said critical data in a vehicle digital communications controller;

transmitting said emergency vehicle critical data to said transceiver at said intersection.

13. The method according to Claim 11 including;  
activating an audio alarm at said intersection to alert  
pedestrians of the approach of an emergency vehicle.

14. The method according to Claim 13 in which said  
activation of said audio alarm comprises activating an audio  
alarm circuit to transmit a predetermined audio communications.

15. The method according to Claim 14 in which said  
transmission of said audio communication comprises transmitting  
said audio communication to a loudspeaker at each corner of said  
intersection.

16. The method according to Claim 11 in which said step of  
displaying information about the status of an intersection in  
said emergency vehicle comprises activating one of a plurality  
of colored LEDs.

17. The method according to Claim 16 in which said  
activating one of a plurality of LEDs comprises activating a red  
LED to indicate a conflict with another emergency vehicle  
approaching an intersection; activating a yellow LED to  
indicate said intersection is preempted or activating a green  
LED to indicate preemption of said intersection is detected.